PALGO JOURNAL OF EDUCATION RESEARCH (PJER)

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REVIEWERS GUIDE

PART A: ***Editorial Office Only***

SECTION I

Reviewer's Name:	
E-mail :	
Manuscript Number:	
Title:	**Linear Algebra as a Mathematical Foundation for Machine Learning Algorithms**
Date Sent To Reviewer:	
Date Expected From Reviewer:	

PART B: ***Reviewer Only***

SECTION II: Comments (Please give your critical comment for the deficiencies of each section of the manuscript. Comments on formating style of the journal, typographical mistakes and grammatical errors are not encouraged).

Abstract	The abstract effectively captures the scope and objectives of the paper by clearly articulating the "black box" problem in machine learning and positioning linear algebra as the solution, though it could be strengthened by including specific quantitative findings or key insights discovered during the review, better defining the target audience such as students, researchers, or practitioners, providing a clearer statement of the methodology used for this review, and reducing redundancy in phrases like "linear algebraic operations" which appears multiple times throughout the text.
Introduction:	The introduction provides solid motivation for the work and establishes the importance of understanding mathematical foundations, with strengths including the clear problem statement and comprehensive scope definition, but it could be enhanced by making the literature review more systematic to show how this work differs from existing reviews, including discussion of recent developments in linear algebra applications to emerging machine learning areas such as quantum ML and federated learning, updating Table 1 to

	include more recent applications like attention mechanisms in transformers, and better establishing the connection between linear algebra and interpretability or explainability.
Methodology:	This section represents the weakest part of the manuscript because, for a review paper, the methodology section should clearly describe the systematic approach used for literature selection and synthesis, but it is too brief and lacks detail about search strategies, databases used, and inclusion/exclusion criteria, fails to mention how potential bias in source selection was addressed, presents a temporal focus from 2020-2025 that seems arbitrary and poorly justified, provides no discussion of how conflicting information from different sources was reconciled, and mentions an organizational approach by ML task rather than by source without adequate justification, requiring improvements such as providing a flowchart of the review process, including search terms and databases used, explaining how the quality of sources was assessed, and discussing limitations of the review methodology.
Results:	The results section is well-structured and comprehensive, effectively demonstrating the connections between linear algebra and machine learning with particular strengths including clear progression from basic concepts to advanced applications, effective use of tables to organize information, good coverage of both traditional ML and deep learning applications, and a practical flowchart for tool selection, but it could be enhanced by improving the quality and clarity of Figure 1 and Figure 2, providing more quantitative analysis of the computational complexity benefits of linear algebra operations, including discussion of numerical stability issues and their practical implications, and expanding coverage of recent developments like sparse matrices in large language models.
Discussion:	The discussion effectively synthesizes the main findings and provides thoughtful insights about future directions, but it could be strengthened by including more critical analysis of limitations in current approaches, discussion of computational challenges and scalability issues, comparison with alternative mathematical frameworks, more specific recommendations for educational curricula, and discussion of how linear algebra knowledge impacts model interpretability and debugging, while also addressing missing elements such as limitations of the review itself, discussion of counter-examples where linear algebra intuition fails, and analysis of the trade-offs between mathematical rigor and practical implementation.

SECTION II (Cont.)

References:	All references were cited correctly. Please provide the full names of all authors in this reference: Vaswani, A., et al. (2017). Note that "et al." should only be used when

	citing more than three authors.
Others:	
General Comment	The manuscript addresses an important topic and provides valuable educational content but requires minor revision before publication, with priority improvements needed to strengthen the methodology section with detailed search strategies and quality assessment criteria, expand the discussion of limitations both of the review and of linear algebra approaches in ML, improve figure quality to ensure all visual elements effectively support the text, address grammatical errors and maintain consistency in technical terminology, and include more recent developments particularly in areas like large language models and quantum ML, while secondary improvements should add quantitative analysis where possible, expand discussion of computational considerations, include more diverse perspectives and applications, and strengthen connections to practical implementation challenges, as this work has the potential to become a valuable contribution to the educational literature in machine learning that would serve as an excellent bridge between mathematical theory and practical application, fulfilling the authors' stated objectives through solid scholarship and clear communication of complex concepts that, with thoughtful revision addressing the identified concerns, could become a significant resource for the ML community.

SECTION III - Please rate the following: ***(1 = Excellent) (2 = Good) (3 = Fair) (4 = poor)***

Originality:	3
Contribution To The Field:	2
Technical Quality:	2
Clarity Of Presentation :	2
Depth Of Research:	3

SECTION IV - Recommandation: (*Kindly Mark With An X*)

Accept (Tick the appropriate box below)	
Requires Minor Corrections:	**x**
Requires Moderate Revision:	
Requires Major Revision:	
Submit to another publication such as:	
Reject (Please be Specific):	

SECTION V: Additional Comments (Please make suggestions to authors).

Please add any additional comments (Including comments/suggestions regarding online supplementary materials, if any):